The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of rapidly welding rebar sections using gas metal arc welding (GMAW) to obtain a fusion weld joint, comprising:

shearing the rebar sections into lengths appropriate for a construction application;

bending the sheared rebar into shapes appropriate for the construction application;

placing the rebar sections into a welding jig;

positioning the rebar sections to physically touch and intersect at a desired location;

adjusting an electrical power source;

positioning a welding rod at a rebar intersection point;

positioning a filler material at the weld location;

delivering a shielding gas to the weld location;

applying electrical power to a welding electrode wire using an electrical power delivery system; and

arcing said electrode wire at the intersection point to form a fusion weld joint.

2. The method of claim 1, wherein the rebar is grade A706 steel.

3. The method of claim 1, wherein the filler material is grade ER80S-D2.

4. The method of claim 3, wherein the filler material comprises:

grade LA90; and,

grade Murematic D2.

5. The method of claim 1, wherein the shielding gas comprises:

about 90% argon; and,

about 10% carbon dioxide.

6. The method of claim 1, wherein the flow rate of the shielding gas is about 35 cubic feet per hour.

7. The method of claim 1, wherein the power delivered by the welder comprises about 100 to 185 kilowatts.

8. The method of claim 1, wherein the electrode wire comprises:

a solid electrode wire of about 0.045 inches diameter single shield; and

a flux core electrode wire of about 0.045 inches diameter single shield.

9. The method of claim 8, wherein the electrode wire feed rate is about 350 inches per minute.

10. The method of claim 1, wherein the electrical power is applied to the wire at about 0.02 seconds spot time.

11. The method of claim 1, wherein the combined weld time is about 2 – 3 seconds.

12. The method of claim 1, wherein the dimension of the fusion weld is about 1/4 — 5/8 inches.

13. The method of claim 1, wherein the fusion weld joint comprises:

a butt joint;

an overlap joint; and

a cross joint.

14. An system for producing GMAW fusion welded rebar panels using rebar, comprising:

a rebar shear used to cut the rebar into lengths appropriate for a construction application;

a rebar bender used to impart curvature to the rebar appropriate for a construction application;

a welding jig used to align the rebar in the desired rebar panel configuration;

at least one rolling table facilitating the movement of the rebar;

a gas metal arc welding unit; and

an electrical power generator delivery system capable of delivering electrical power to the gas metal arc welding unit.

15. The system of claim 14, wherein the assembly system is stationary.

16. The system of claim 14, wherein the assembly system is portable.